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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/668,056  | 09/22/2003  | Marek T. Wlodarczyk  | 97-1051DIV          | 7282             |
| 7590  | 07/06/2006  |                      | EXAMINER            |                  |
| James M.Deimen<br>Suite 300<br>320 N. Main Street<br>Ann Arbor, MI 48104-1192 |             |                      | HEALY, BRIAN        |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      |                     | 2883             |

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 10/668,056             | WLODARCZYK ET AL.   |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Brian M. Healy         | 2883                |

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-30 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-10 and 12-30 is/are allowed.
- 6) Claim(s) 11 is/are rejected.
- 7) Claim(s) 18 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09/22/2003 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 11 rejected under 35 U.S.C. 102(b) as being anticipated by Ozeki, U.S.P. No. 4,392,712.

Ozeki teaches (Figs. 1-12) an optical fiber pair/coupler comprising at least two optical fibers 11,12 in parallel relationship to each other with claddings being of decreased thickness and bonded together along a common interface 13 which clearly, fully meets Applicant's claimed limitations.

### ***Allowable Subject Matter***

Claims 1-10 and 12-30 are allowed over the prior art of record. The closest prior art of record is Zuckerwar et. al., U.S.P. No. 5,200,610, teaches (Figs. 1-8) an optical fiber pressure sensor comprising: at least a pair of optical fibers 12,13 for transmitting and receiving optical signals placed in a ferrule-like structure 54,52,42 and the optical signals reflect from a curved deformable diaphragm or membrane 21 which then yields a pressure read-out using detector electronics.

Zuckerwar et. al. 610' does not teach or suggests the diaphragm having an underside having a permanently concave curved surface with the curved surface being reflective and juxtaposed to reflect light from the tip of one fiber to another. This

limitation is recited in claim 1. Dependent claims 2-10 includes the limitations of claim 1 along with other additional limitations (see dependent claims for these specific limitations). Also, neither Zuckerwar et. al. or any of the other references teaches or suggests an internal combustion engine fuel injector having a fuel chamber therein, an optical fiber fuel pressure sensor in the injector with the optical fiber fuel pressure sensor including a diaphragm which is in direct contact (or in communications with) with the fuel chamber. These limitations are recited in claims 12 and 22. Dependent claims 13-16 and 18-21 and 23-30 includes the limitations of either claim 12 or 22 along with other additional limitations (See dependent claims for the specific details of these limitations.).

Finally, Zuckerwar et. al. does not teach or suggest the claimed intyernal combustion engine fuel injector having a fuel injector having a fuel chamber and an optical fiber fuel pressure sensor in the injector and in communications with the injector, a channel formed in the injector that is open to engine combustion, temperature sensing means mounted in at least one pressure sensor, circuit means in opto-electronic communications with the sensor with detection means that can detect induced changes in temperature and pressure and a means to combine the the responses of the detected light and temperature induced changes and in response thereto to provide an output corrected for the temperature induced changes. These limitations are recited in claim 17.

**CLAIM OBJECTIONS**

Claim 18 objected to because of the following informalities: the claim cannot be dependent upon antecedent claims but only preceding claims (i.e. claim 18 cannot be made dependent on claim 20). Appropriate correction is required.

The following references are also cited by the Examiner as being pertinent art:  
Wlodarczyk et. al., U.S.P. No. 6,622,549 (Figs.1-18), Poorman et. al., U.S.P. No. 5,600,125 (Figs.1-3), Taylor et. al., U.S.P. No. 5,452,087 (Figs.1-5), Fujiwara, U.S.P. No. 5,657,405 (Figs.1-8), Wlodarczyk, U.S.P. No. 6,966,217 (Figs.1-6), Wlodarczyk et. al., U.S.P. No. 6,131,465(Figs.1-29), Snider, U.S.P. No. 4,588,886(Figs.1-9) and Aagard, U.S.P. No. 4,487,206 (Figs.1-4).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. Healy whose telephone number is (571)272-2347. The examiner can normally be reached on Compressed. Schedule Mon.-Fri. 6AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571)272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**Brian M. Healy  
Primary Examiner  
Art Unit 2883**

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**BRIAN HEALY  
PRIMARY EXAMINER**